**Vaccine to Control and Eradicate Bovine Leukemia Virus**

**Development requirements (testing, scale-up production, investment, etc.):**

Requires proof of concept in ongoing activities:

·Development of the final form of the active ingredient in the formulation. These tests are being conducted presently as a service from the Texas Medical Institute.

·Formulation development (excipients, form, etc.).

·Partial storage studies have been conducted. Further studies may be required.

**Working group:** Bovine Leukemia Virus Group – Virology Institute, CICVyA, CNIA INTA. Principal Investigator: Karina Trono

**Statement of problem:**

The Bovine Leukemia Virus (BLV) is a retrovirus that induces chronic infection in bovine cattle that develops according to three forms of the disease: the asymptomatic course, persistent lymphocytosis (PL) and malignant lymphoma. Upon infection, cattle remains a virus carrier for life and experiences a serological reaction a few weeks following infection. BLV infection is broadly disseminated worldwide and is classified by the World Organization for Animal Health as a relevant disease for international trade. Bovine Leukemia Virus is a silent disease with a covert impact that causes 10 % mortality in animals and reduces the reproductive capacity of the herd, as well as productive capacity losses. Almost 100% of dairy farms in Argentina suffer high transmission levels, ranging at 80% or more. There is no commercial vaccine available to prevent this disease or a treatment thereof.

High. The vaccine product has completed the proof of concept in cows. It triggers a strong anti-BLV immune response and protects against challenge with a wild-type BL virus. A large-scale efficacy trial is underway in Argentina in actual dairy farms conditions. The trial spans 5 years overall and is currently in the fourth year, which is expected to end in 2020.

**Technology Readiness Level:**

Animal Health

**Technology proposal:**

The proposal is a vaccine composed by an attenuated virus/provirus strain that prevents infection with the wild-type strain and consequently prevents disease development. The advantages of this technology:

· A system that enables to differentiate vaccinated animals from infected ones, since the vaccine is an attenuated strain and not exactly identical to the wild-type strain (developed by the same academic group).

· The vaccine triggers a strong anti-BLV immune response comparable to the immune response to the wild-type virus.

· The vaccine strain does not propagate to uninfected sentinels kept for extended periods in the same herd (in other words, vaccine biosafety is satisfactory).

· Vaccination leads to the production of antibodies transferred to newborn calves through maternal colostrum. Therefore, passive antiviral immunity persists for several months in calves.

· The vaccine attenuated viral strain is not transferred from cows to calves.

· Vaccination causes vaccinated animals to resist challenge by wild-type BLV provirus.

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